THE EFFECT OF SUPER – OXIDIZED SOLUTION DRESSING VERSUS POVIDONE - IODINE DRESSING ON WOUND SEVERITY AMONG PATIENTS WITH DIABETIC FOOT ULCER IN SELECTED HOSPITALS AT JEYANKONDAM

Dissertation submitted to

THE TAMIL NADU DR. M. G. R. MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF DEGREE OF

MASTER OF SCIENCE IN NURSING

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_____ _____

INTERNAL EXAMINER **EXTERNAL EXAMINER**

DECLARATION

I **301211707** hereby declare that this dissertation entitled **"A STUDY TO COMPARE THE EFFECTIVENESS OF SUPER - OXIDIZED SOLUTION DRESSING VERSUS POVIDONE - IODINE DRESSING ON WOUND SEVERITY AMONG PATIENTS WITH DIABETIC FOOT ULCER IN SELECTED HOSPITALS AT JEYANKONDAM''** has been prepared by me under the guidance and direct supervision of **Prof. R. Punithavathi M.Sc.(N)** Professor cum Principal, Thanthai Roever College of Nursing, Perambalur, as a requirement for partial fulfillment of M.Sc. Nursing degree course under **The Tamil Nadu Dr. M. G. R. Medical University, Chennai – 32.** This dissertation had not been previously formed and this will not be used in future for award of any other degree / diploma. This dissertation represents independent original work on the part of the candidate.

Place: Perambalur
Date: April – 2014.

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THE EFFECT OF SUPER - OXIDIZED SOLUTION DRESSING VERSUS POVIDONE - IODINE DRESSING ON WOUND SEVERITY AMONG PATIENTS WITH DIABETIC FOOT ULCER IN SELECTED HOSPITALS AT JEYANKONDAM.

ABSTRACT

INTRODUCTION

Diabetic foot ulcer is the one of the most common and devasting complication of diabetic mellitus are painful and can lead to further infections and limb amputations. Approximately 15% of all diabetic patients are at risk for foot ulcerations during their lifetimes and 70% of healed ulcers are estimated to reoccur within 5years.

OBJECTIVE

To compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer.

METHOD

True experimental pre-test - post-test design. 60 patients with diabetic foot ulcer were selected by simple random technique and divided in to two groups. Experimental group-I (n=30) received super - oxidized solution dressing and experimental group-II (n=30) received povidone - iodine dressing on once a day for seven days. Pre-test was done by using

Bates Jensen wound assessment tool and post-test was done on 7th day by using wound assessment tool.

RESULT

The findings revealed that the experimental group-I mean score 18.13 was lesser than the experimental group-II mean score 21.70. The obtained‘t’ value was 3.763, significant at 0.001 level. There was no significant association between age, gender, history of smoking, alcoholism, and tobacco chewing, diet pattern, use of foot wear, type of treatment, treatment of diabetes mellitus, cause of foot ulcer and duration of diabetes mellitus and post-test level of wound severity of the participants in both the groups.

CONCLUSION

From the above findings, it was evidenced that super - oxidized solution dressing was more effective than povidone - iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer. An improvement in the wound status and thereby in the quality of life of clients could be brought by performing super - oxidized solution dressing.

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CHAPTER I

INTRODUCTION

"Every new discovery of science is a features revelation of the order that god has built in to his universe"

-Warren weaves.

Diabetic foot ulcer is one of the morbid complications associated with Diabetes mellitus which can range from an ulcer to any extent of amputation if not properly cared. The enormity of the global burden of Diabetic foot disease is much neglected, but potentially devastating complication of this disease is reaching epidemic proportion. Someone somewhere loses a leg because of diabetes every 30 seconds of everyday.

Diabetic foot complications are a major global public health problem. Diabetes mellitus is the most common cause of non-traumatic amputation and the annual incidence of Diabetic foot ulcer is 3%. The rate of amputation varies throughout the world but is increasing in patients with Diabetes mellitus. The health care systems have been unsuccessful in managing the overwhelming Diabetic foot problems in patients.

In 2003, there were 189 million Diabetes in the world; the projected figure for 2025 is 324 million. Independent WHO observes put the total no of Diabetes at 177 million India tops the best of 10 countries followed by China. It is also estimated that there are 30 - 33 million Diabetics in India now and every 4^{th} Diabetic in the world today is an Indian. National goals of healthy people 2015 are to prevent and reduce foot amputation by at least by 50%.

Treatment of chronic wounds is done through a comprehensive therapy and can be divided in to a corrective mode followed by a maintenance

mode. The corrective mode is based on removing necrotic tissue (debriding), irrigating the wound creating a moist environment and is the pre-condition for the maintenance mode. The maintenance mode is based on keeping the wound site moist, while protecting against bacteria and other pathogenic micro-organisms, enabling the human body to perform the wound healing process. Clinicians have used numerous strategies to combat wound infections, including topical and systemic administration of antibiotics, and various antiseptic agents such as hypo chloride and hydrogen peroxide have been placed on wound to kill bacteria or inhibit their growth.

Super - oxidized solution is an electrochemically processed aqueous solution manufactured from pure water and sodium chloride (salt) by water ionization process. Super - oxidized solution contains reactive oxygen and chlorine species which denatures or “dissolves” protein present in the cell membrane and enters the bacterial cell. Once super - oxidized solution enters the bacterial cell, the cell swells and finally causes lysis of bacteria.

Povidone – iodine (anti-microbial agent) is a complex of iodine, the bactericidal component with polyvinyl pyrrolidone (povidone) a synthetic polymer. Iodine products reduce bacterial load and are active against most species of micro-organisms and certainly those encountered in chronic wound. The most commercial form is a 10% solution in water yielding 1% available solution.

BACKGROUND OF THE STUDY

The burden of foot ulceration is heaviest in parts of the world with poor resources and physical, emotional and social disturbances associated with foot ulcers are clinically significant

Lavery, Armstrong, et al., (2006) reports that more than half of all foot ulcers will become infected, requiring hospitalization and 1 in 5 will require an amputation. The incidence of Non-Traumatic Lower Extremity Amputations (LEAs) has been reported to be at least 15 times greater in those with Diabetes than with any other concomitant medical illness. It has been reported that annually, about 1 to 4 percent of those with Diabetes develop a foot ulcer.

Foot ulceration is preventable, and relatively simple interventions can reduce amputations by up to 80%. Good control of Glycosylated, blood pressure, and lipid levels are well established as being crucial elements in the reduction of risk for complications of Diabetes. Regular evaluation and early treatment are the most effective mechanisms to prevent the devastating Diabetic foot complications. Unfortunately, the majority of patients admitted to the hospital for Diabetic foot complications receive a less than adequate lower extremity evaluation. Though there is an obvious increase in Diabetic foot care awareness, there are tremendous gaps in routine foot evaluations. Thus nursing care should focus on these aspects.

The relative 5 - year mortality rate after limb amputation is 68%. When compared with cancer - it is second only to lung cancer (86%). (Colorectal cancer 39%, Breast cancer 23%, Hodgkin’s disease 18%, Prostate cancer 8%). Patient education about foot care as well as frequent foot examination by health care providers may reduce the prevalence of lower extremity amputations.

NEED FOR THE STUDY

Complication of Diabetes mellitus can have an important implication for planning nursing care irrespective of the patient is at home or hospital. The nurse should carefully assess his nursing needs giving special

consideration to risk associated with impaired circulation and sensation, increased risk of infection and delayed healing. Recognition of these risk factors will enable care to accommodate the patient's particular vulnerabilities and will help to ensure that suitable support is provided to prevent complication.

Among Diabetes mellitus related complications, foot ulceration is the most common, affecting approximately 15% of Diabetic patients during their life time. This can be attributed to several social and cultural practices such as barefoot walking, inadequate facilities for Diabetes care and education, and poor socio-economic conditions. Sporadic qualitative research suggests that Diabetic foot ulceration has a profound social impact with patients reporting stigma, social isolation, loss of social role, and unemployment. Limb amputation has a major impact on the individual, not only in distorting body image, but also with regard to loss of productivity, increasing dependency, and costs of treating foot ulcers if patients require inpatient care.

American Diabetes Association states that risk identification is fundamental for effective management of the foot in people with Diabetes. The early recognition and management of the risk factors for ulcers and amputation can prevent, delay the onset of these adverse outcomes. Patients with Diabetes and high risk foot conditions should be educated regarding their risk factors and appropriate management. Therefore the timely prevention and treatment of Diabetic ulcerations are fundamental for amputation prevention.

During the researcher's clinical experience, she nursed many patients with the complaints of Diabetic foot ulcer and they were hospitalized for long periods. This motivated the researcher to select this problem for further investigation. This research is intended compare the effectiveness of

super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals.

STATEMENT OF THE PROBLEM

A study to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals at Jeyankondam.

OBJECTIVES

1. To assess the level of wound severity among patients with Diabetic foot ulcer receiving super – oxidized solution dressing.
2. To assess the level of wound severity among patients with Diabetic foot ulcer receiving povidone - iodine dressing.
3. To assess the effectiveness of super – oxidized solution dressing in reduction of wound severity among patients with Diabetic foot ulcer.
4. To assess the effectiveness of povidone - iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer.
5. To compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer.
6. To associate post-test level of wound severity among patients with Diabetic foot ulcer receiving super - oxidized solution dressing with their selected demographic variables.

7. To associate post-test level of wound severity among patients with Diabetic foot ulcer receiving povidone - iodine dressing with their selected demographic variables.

RESEARCH HYPOTHESES

H_1 There will be a significant reduction on wound severity among patients with Diabetic foot ulcer receiving super – oxidized solution dressing.

H_2 There will be a significant reduction on wound severity among patients with Diabetic foot ulcer receiving povidone - iodine dressing.

H_3 Super – oxidized solution dressing will be effective than the povidone - iodine dressing on reduction of wound severity among patients with Diabetic foot ulcer.

H_4 There will be a significant association between post-test level of wound severity and selected demographic variables of patients with Diabetic foot ulcer receiving super - oxidized solution dressing.

H_5 There will be a significant association between post-test level of wound severity and selected demographic variables of patients with Diabetic foot ulcer receiving povidone - iodine dressing.

OPERATIONAL DEFINITIONS

EFFECTIVENESS

It refers to the changes in severity of wound brought by the super - oxidized solution dressing and povidone - iodine dressing and it is measured in term of severity by wound assessment tool.

COMPARATIVE

Estimating the difference between the effectiveness of povidone - iodine dressing versus super - oxidized solution dressing in the level of wound severity among patients with Diabetic foot ulcer.

DIABETIC FOOT ULCER

In this study refers to foot ulcers present in foot of the patient with involvement of skin, subcutaneous and or underlying structure.

POVIDONE - IODINE

A povidone – iodine (anti-microbial agent) is a complex of iodine, the bactericidal component with polyvinyl pyrrolidone (povidone) a synthetic polymer. Iodine products reduce bacterial load and are active against most species of micro-organisms and certainly those encountered in chronic wound care.

SUPER – OXIDIZED SOLUTION

Is an electrochemically processed aqueous solution prepared from pure water and sodium chloride. Super - oxidized solution dressing on Diabetic foot ulcer is done by the researcher once a day for seven days.

WOUND SEVERITY

Status of the wound which will be assessed through Bates Jensen wound assessment tool.

ASSUMPTIONS

- Poor wound healing leads to amputation.
- Uses of super – oxidized solution dressing have a better healing power more than povidone - iodine dressing.

DELIMITATIONS

- This study is delimited for 60 samples only.
- This study is delimited for 4 weeks of duration.

PROJECTED OUTCOME

The findings of the study will reveal the effectiveness of using super- oxidized solution / povidone - iodine dressing on reduction of wound severity in Diabetic foot ulcer. If found to be effective this intervention could be incorporated as one of the nursing measures to reduce wound severity among patients with Diabetic foot ulcer.

CHAPTER II

REVIEW OF LITERATURE

The review of literature refers to an extensive, exhaustive and systematic examination of publications relevant to the research project. Review of literature is a critical examination of publication related to a topic of interest. Thorough literature review provides a foundation on which to base new knowledge and usually conducted well before any data is collected. A familiarization with previous studies can also be useful in suggesting research topics or in identifying aspects of a problem about which more research is needed.

PART - I

The review of related literature is organized under the following section.

Section – A Studies related to Diabetic foot ulcers.

Section – B Studies related to Povidone - iodine dressing versus super - oxidized solution dressing on wound healing.

Section – C Studies related to povidone - iodine dressing

Section – D Studies related to super - oxidized solution dressing

SECTION - A Studies related to Diabetic foot ulcer

Bell D. (2008) analyzed on evidence Based rationale for off-loading treatment modalities. These results suggest that reducing pressure at the site of the ulcer can promote healing and prevent further ulceration. Off-

loading is an evidence based treatment modality for patients with Diabetic foot ulcers and part of the standard protocol for treatment.

Clemens M.W, Attinger. C.E (2008) conducted a study on biological basis of Diabetic foot wounds. The steps to achieving a healthy healing wound include a correct diagnosis, ensuring a good local blood supply, debriding the wound to reveal a clean base, correcting the biomechanical abnormality, and nurturing the wound until it shows signs of healing.

Menmood. K, Akhtar. S.T, et al., (2008) conducted a study on clinical profile and management outcome of Diabetic foot ulcers in a tertiary care hospital. Foot ulcers of 89 (77.7%) patients healed without amputation and 17 (14.7%) patients had minor or major amputations. These results suggest that effective glycemic control, optimal wound care, aggressive medical management and timely surgical intervention may decrease disabling morbidity with better outcome of Diabetic foot ulcer.

Lavery. L. A, Peters. E. J, Armstrong. D. G. (2008) conducted a study on what is the most effective intervention in preventing Diabetic foot ulcers. These results suggest that there are a finite number of key factors that, if identified and addressed with appropriate intervention strategies, may reduce the risk for the cascade of events towards ulceration and subsequent amputation.

Pataky. Z, vischer. U. (2007) conducted a study with Diabetic foot disease in the elderly. Elderly Diabetic patients are particularly burdened by foot disease. These results suggest that greater attention to prevention and individualized care needed to reduce the burden of Diabetic foot disease in the elderly.

Bentley. J, Foster. A. (2007) conducted a study on multi-disciplinary management of the Diabetic foot ulcer. Diabetic foot ulcers are likely to occur in up to 25% of people with Diabetes mellitus at some time in their life without adequate management, there is a high risk of infection, gangrene, amputation and death. Diabetic patients with foot ulcers benefit from accurate and prompt assessment, diagnosis treatment and long term follow-up in order to conserve the foot. Their management cannot be undertaken by one health care professional working in isolation but should involve a multidisciplinary team to ensure that these complex wounds are treated appropriately.

Jayasinghe. S. A, Atukorala. I, *et al.*, (2007) conducted a study on "Is walking barefoot a risk factor for Diabetic foot disease in developing countries" This suggested that walking barefoot is a risk factor for foot ulcers, and that using foot wear has the potential to prevent foot ulcers.

Sheelian (2003) conducted a study to assess the effect of health teaching on prevention of Diabetic foot ulcers among patients in selected Diabetic health centers. A Quasi experimental research design and a sample of 100 were utilized for the study. The result showed that increased level of knowledge on prevention slowed down the progression of Diabetic foot ulcer among Diabetic patients.

Christophe (2002) conducted a study to find out the incidence of amputations and their relative risks in Diabetes patients. The result indicated that the incidence of amputations was 33.8% in Diabetic population and 9.4% in Non-Diabetic population. The relative and population attributable risk indicates that improving foot care in Diabetic individuals appears to be the main reason for the reduction of amputation rate from 90% to 46%.

SECTION - B Studies related to povidone - iodine dressing versus super - oxidized solution dressing on wound healing

Vanitakapur et al., (2011) conducted a study to evaluate the effect of super -oxidised water (Oxum) versus povidone - iodine (Betadine) on similar types of wounds. The patients were divided into two groups. Group A where topical management and dressing was done using oxum and group B where topical management and dressing was done using povidone. These study suggest that oxum treated wounds showed reduction in inflammation and their healing earlier than povidone group.

Gore tic, Mazzurcos, et al., (2009) evaluated the treatment of wide post-surgical infected ulcers of the Diabetic foot. Patients in group A (OXUM) had statistically significant shorter healing time and duration of antibiotic therapy and a higher healing rate at 6 months compared with those in group B (POVIDONE).

Chiara. G. et al., (2008) conducted an experimental study on comparing 33 patients with Diabetic who had wide post-surgical infected Diabetic foot ulcer, without ischemia. 18 patients were treated with super - oxidized solution while a 15 patient historical control group was treated with povidone - iodine. The results showed that patients in the super - oxidized solution group had statistically shorter healing time and duration of antibiotic therapy and a higher healing rate at six months compared with those in the povidone - iodine group.

Dr. Luca Dalla Paola (2007) conducted experimental study on 218 patients suffering from chronic Diabetic foot ulcers 110 patients were treated with super – oxidized solution (oxum) and 108 patients with povidone - iodine. The mean healing time was lower in the oxum group (45 ± 14) days versus (58 ± 20) days in povidone group.

Ashok Anand (2007) compared the efficacy and tolerability of Oxum against Povidone - Iodine topical application in the Post-caesarean section wound management. This study suggest that Oxum (Microcyn Super - oxidized solution) is safe and effective in post-caesarean wound care management and gives better efficacy and faster response as compared to the traditional Povidone - iodine topical application in post caesarean section wound care management.

SECTION - C Studies related to povidone – iodine dressing

Leaper. D. J. Durani (2008) conducted a study on topical anti-microbial therapy of chronic wounds healing by secondary intention using iodine products. Iodine products reduce bacterial lode and are active against most species of micro-organisms, and certainly those encountered in chronic wound care.

Kramer. S. A. (2004) conducted a study on effect of povidone - iodine on wound healing. The use of povidone - iodine for cleaning, irrigating and dressing wounds is controversial. The studies provide evidence that in most instances, povidone - iodine did not effectively promote good wound healing; in fact, most studies showed impaired wound healing, reduced wound strength, or infection.

Lawrence. J. C. (2002) conducted a study on a povidone - iodine medicated dressing. The iodine content of a tulle-grass type dressing medicated with povidone -iodine has been measured and its potential efficacy in wound care explored by means of laboratory models. This dressing reduces the bacterial burden of colonized wounds.

SECTION - D Studies related to super – oxidized solution dressing

Chittoria. R. K, Yootla. M, *et al., (*2007) conducted a study on the role of super -oxidized solution in the management of Diabetic foot ulcer. This study suggests that super - oxidized solution helped in total healing and prepared wounds for definite cover by reducing infection and promoting granulations.

Hadi. S. F, Khaliq. T, Bilal.N, *et al.*, (2007) Conducted a study on treating infected Diabetic wounds with super - oxidized solution as anti-septic agent and reported reduced duration of hospital stay, down grading of the wound category and effective wound healing time.

Gutierrez (2006) explored applications of super - oxidized solution and concluded that the moistening effects and minimum toxicity found with the use of this super - oxidized solution made it a good choice for wound care management.

PART -II

CONCEPTUAL FRAMEWORK

The conceptual framework of the study was derived from the modified Wiedenbach's Helping Art of clinical Nursing theory (1964).

According to the theory, the nursing is involved in three components.

- ❖ Identifying a need for help
- ❖ Ministering needed plan
- ❖ Validating that need for help was met

In this study the nurse investigator attaining the goal through 3- steps of Wiedenbach's perspective theory.

STEP - I

IDENTIFING OF NEED FOR HELP

General information

For collecting general information the investigator collect information, generally through Demographic variables and through pre-test collect information about severity of wound minimal, mild, moderate and critical.

The central purpose

According to the theory the central purpose refers to what the nurse wants to accomplish. It is the overall plan towards nurse strives. It transcends the immediate intent of the assignment or task by specially directing activities towards the patient's goal.

In this study the central purpose was the reduction of the severity of wound.

The prescription

According to the theory the prescription refers to the plan of care for patients. It specifies the nature of action that will fulfill the nurse's central purpose and the rational for that action. After the prescription of established, the nurse can implement it through the nursing care plan.

STEP - II

MINISTERING THE NEEDED HELP

The nurse formulates a plan for meeting the patients need for help based on available resources. What the patients thinks, knows, can do, and has done plus what the nurse thinks, knows, can do, and has done; the nurse presents the plan to the patients and the patient's response to it.

Realities

It refers to the physical, physiological, emotional and spiritual factors that come in to play in a situation involving nursing action. Wiedenbach's defines the 5 - realities as agent, recipient, goal, mean and framework.

The agent who is the practicing nurse and her delicate characterized by personal attributes, problems, capacities and commitment and conference to provide nursing care. In this study it refers to the researcher; direct all action toward the goal.

The recipient is the patient who has personal attributes, problems, capabilities, aspiration and abilities to hope with the concerns or problems being experienced. In this study recipient are Diabetic foot ulcer patients.

The goal is the nurse's desired outcome the nurse wishes to achieve. In this study it refers to reduction of severity of wound

The mean comprise the activities and devices used by the nurse to achieve the goal. This includes specific skills, procedures, techniques and devices that may be used to facilitate nursing practiced. In this study according to the wound severity (approximately 5ml - 10 ml) using super -

oxidized solution and povidone - iodine dressing one time per day for seven days.

The framework consists of the human, environment, professional and organizational facilities. In this study Diabetic foot ulcer patients selected at Government hospital and Diabetic care center at Jeyankondam.

STEP - III

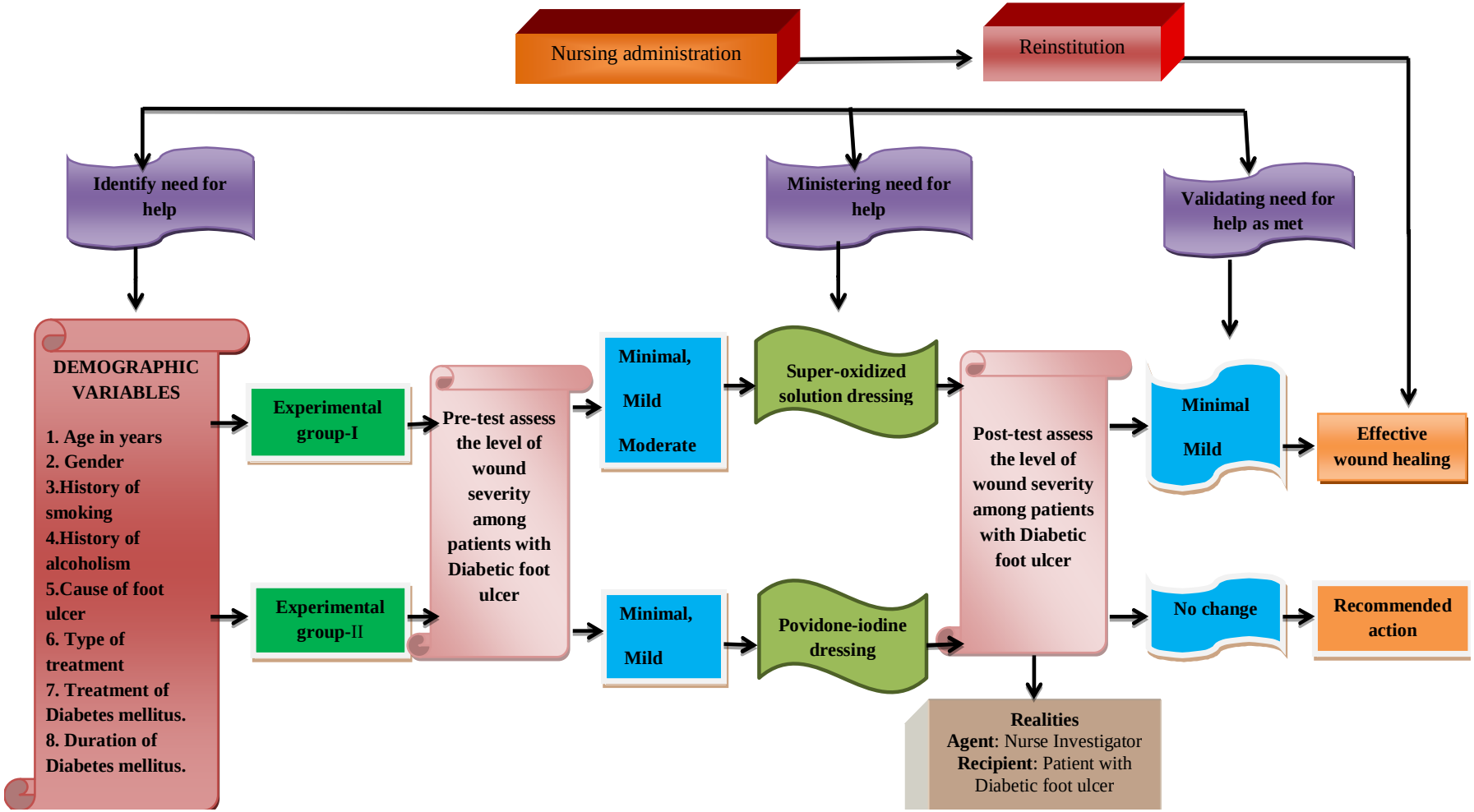
VALIDATING THAT THE NEED FOR HELP WAS MET

The nurse perceives the patient's behavior consistent or inconsistent with the nurse's concept of comfort of capability.

It refers to a collection of evidence that shows patients need have been met and that his/her functional ability has been restored as a direct result of the research action. It is based on patient's oriented evidence. This step involves post-test assessment and that score after ministering analysis to infer the outcome.

In this study the post-test was done through Bates Jensen wound assessment tool. According to the result of the pre-test score described the minimal, mild, moderate wound severity in experimental group - I was improved to minimal, mild, wound severity and effective wound healing. Experimental group - II had no change.

Figure 1 Wiedenbach's Helping Art to Clinical Art of Clinical Nursing Theory (1964)



CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the methodology followed to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on reduction of wound severity among patients with Diabetic foot ulcer.

RESEARCH APPROACH

Evaluative and comparative approach was the research approach.

RESEARCH DESIGN

In this study the true experimental pretest - posttest design.

GROUPS	PRE-TEST	INTERVENTION	POST-TEST
EXPERIMENTAL GROUP – I	OI	X1	O2
EXPERIMENTAL GROUP – II	OI	X2	O2

O1: Pre-test assessment of wound severity.

X1: Intervention of super - oxidized solution dressing.

X2: Intervention of povidone - iodine dressing.

O2: Post-test assessment of wound severity.

SETTING OF THE STUDY

The study was conducted in outpatient and inpatient departments of Government Hospital and Diabetic care center at Jeyankondam.

POPULATION

Target population

The target population of the present study comprises of all the patients having Diabetic foot ulcer.

Accessible population

The accessible population comprises of all the patients having Diabetic foot ulcer attending Diabetic outpatient and inpatient departments of Government hospital and Diabetic care center.

SAMPLE

Patients with Diabetic foot ulcer attending Government hospital and Diabetic care center Jeyankondam, who met the inclusion criteria.

SAMPLE SIZE

The sample size was 60. 30 samples in experimental group - I and 30 samples in experimental group - II.

SAMPLING TECHNIQUE

Simple random sampling technique.

CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA

- Patients with Diabetic foot ulcer.
- Age 30 - 60 years.
- Both male and female patients with Diabetic foot ulcer.

EXCLUSION CRITERIA

- Patients who were not willing to participate in the study.
- Patients who were receiving Corticosteroids / cytotoxic drugs.
- Patients having Non-Diabetic foot ulcer.

VARIABLES

The variables included in the study were

INDEPENDENT VARIABLE: super - oxidized solution dressing / povidone - iodine dressing.

DEPENDENT VARIABLE: Wound severity of Diabetic foot ulcer.

DESCRIPTION OF THE DATA COLLECTION TOOL

SECTION - I

Interview guide which consist of questions to collect the demographic data like age, gender, history of smoking, alcoholism, tobacco chewing, diet pattern, use of foot wear, type of treatment, and cause of foot ulcer.

SECTION - II

Bates Jensen wound assessment tool was used to assess the wound severity. It consists of 12 statements. Answer categories are minimal, mild, moderate and critical in each statement. Total score is 65.

GRADING PROCEDURE

SEVERITY OF THE WOUND	SCORE
MINIMAL	13 – 20
MILD	21 – 30
MODERATE	31 – 40
CRITICAL	41 – 65

CONTENT VALIDITY

For the content validity the research tool was submitted to experts and requested to give their opinion about the content areas and the relevance denting and appropriateness of their items. The experts included were 3-Nursing experts specialized in medical surgical nursing and 1-Doctor from medical department.

PILOT STUDY

In order to test the feasibility, relevance, and practicability of the study, pilot study was conducted among samples in the same manner of the original study setting after getting a formal permission from the medical director. The purpose of the study was explained to the patients with Diabetic foot ulcer and obtained consent from the samples. Subjects who met the inclusion criteria were selected by the simple random sampling technique. 3 - Diabetic foot ulcer patients were selected in experimental group - I and 3 in experimental group - II. Patients with Diabetic foot ulcer were assessed to compare the effectiveness of super - oxidized solution dressing versus povidone – iodine dressing on reduction of wound severity. The study was found to be feasible.

DATA COLLECTION PROCEDURE

After receiving permission from concerned authorities, the main study was conducted at Government hospital and Diabetic care center. 30 samples were recruited in each group through random sampling technique. Purpose of the study explained and written consent obtained on day - 1. Demographic profile collected, Pre-test was done by using Bates Jensen wound assessment tool and post-test was done after giving povidone - iodine dressing and super - oxidized solution dressing once a day for seven days. After the completion of the data collection additional information was provided. Finally all the subjects were thanked for their participation in the study.

PLAN FOR DATA ANALYSIS

It was planned to use descriptive and inferential statistics.

DATA ANALYSIS AND STATISTICAL METHODS

DESCRIPTIVE STATISTICS

- The frequency and percentage will be used to analyze the demographic variables and level of wound severity.
- Mean and standard deviation will be used to assess the pre-test and post-test scores.

INFERENTIAL STATISTICS

Paired ‘t’ test

Compare the scores of pre-test and post-test of patients in the same groups.

Independent ‘t’ test

Compare the scores of post-test effectiveness of povidone - iodine dressing and super - oxidized solution dressing.

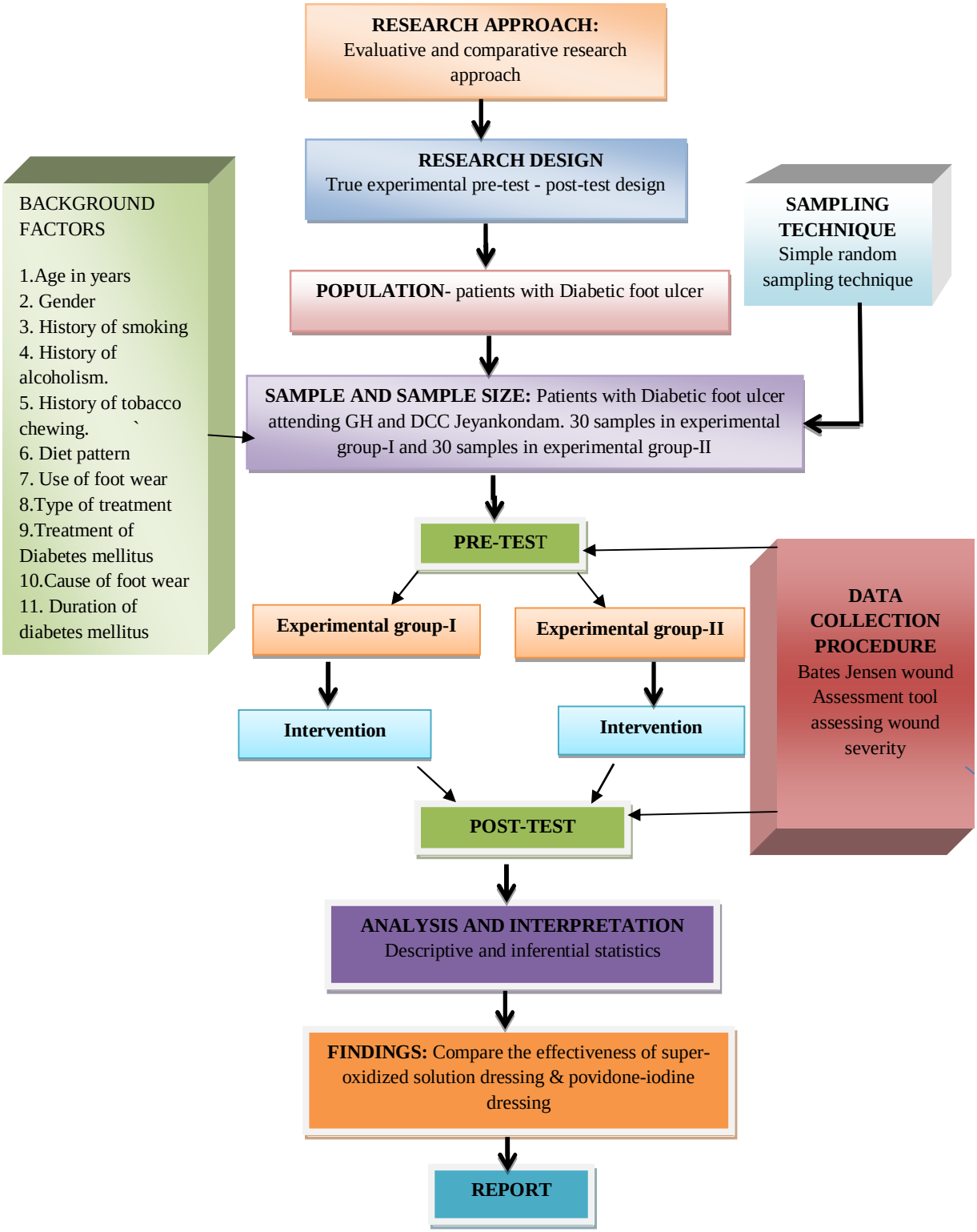
Chi-Square test

The test will be used to find out the association of post-test level of wound severity with their selected demographic variables.

PROTECTION OF HUMAN RIGHTS

The proposed study was conducted after the approval of research ethics committee of the college. The permission was sought from the selected hospital. The written consent of each individual was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collection. Participants were given assurances that have the right to withdraw during data collection.

SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY



CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals at Jeyankondam.

The data collected were grouped, tabulated, organized, analyzed and interpreted under the following section.

SECTION - I

Description of demographic variables among patients with Diabetic foot ulcer.

SECTION - II

(a) Pre-test and post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - I.

(b) Pre-test and post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - II.

SECTION – III

(a) Comparison of mean score and standard deviation of wound severity in the pre-test and post-test among patients with Diabetic foot ulcer in experimental group - I.

(b) Comparison of mean score and standard deviation of wound severity in the pre-test and post-test among patients with Diabetic foot ulcer in experimental group - II.

(c) Comparison of mean score and standard deviation of wound severity in the post-test among patients with Diabetic foot ulcer in experimental group - I and II.

SECTION - IV

(a) Association of the post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - I with their selected demographic variables.

(b) Association of the post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - II with their selected demographic variables.

SECTION - I

TABLE 1

Frequency and percentage distribution of demographic variables among patients with Diabetic foot ulcer in experimental group – I and experimental group - II.

(N=60)

S.no	Demographic Variables	Experimental group-I		Experimental group-II	
		F	%	F	%
1	**Age in years**				
	30 - 40	0	0.00	4	13.33
	41 - 50	13	43.33	18	60.00
	51 - 60	17	56.67	8	26.67
2	**Gender**				
	Male	21	70.00	20	66.67
	Female	9	30.00	10	33.33
3	**History of smoking**				
	Yes	15	50.00	5	16.67
	No	15	50.00	25	83.33
4	**History of alcoholism**				
	Yes	11	36.67	8	26.67
	No	19	63.33	22	73.33
5	**History of tobacco chewing**				
	Yes	3	10.00	3	10.00
	No	27	90.00	27	90.00
6	**Diet pattern**				
	Vegetarian	6	20.00	8	26.67
	Non vegetarian	24	80.00	22	73.33

S.no	Demographic Variables	Experimental group-I		Experimental group-II	
		F	%	F	%
7	**Use of foot wear**				
	Yes	29	96.67	24	80.00
	No	1	3.33	6	20.00
8	**Type of treatment**				
	Oral hypoglycemic agent	21	70.00	20	66.67
	Insulin	9	30.00	9	30.00
	Both	0	0.00	1	3.33
9	**Treatment of Diabetes mellitus**				
	Regular	28	93.33	26	86.67
	Irregular	2	6.67	4	13.33
10	**Cause of foot ulcer**				
	Cellulitis	1	3.33	6	20.00
	Trauma	29	96.67	24	80.00
11	**Duration of diabetes mellitus**				
	<2 years	0	0.00	3	10.00
	2-4 years	12	40.00	20	66.67
	4 - 6 years	17	56.67	6	20.00
	>6 years	1	3.33	1	3.33

Table - 1 reflects the frequency and percentage distribution of demographic variables of patients with Diabetic foot ulcer in experimental group - I and experimental group - II.

- Majority 17 (56.67%) of subjects in experimental group – I belong to the age group of 51 - 60 years and in experimental group - II 18 (60.00%) belong to the age group of 41 - 50 years.

- Majority 21 (70.00%) in experimental group - 1 and 20 (66.67%) of experimental group - II were male.

- Half 15 (50%) of the samples were smoker in experimental group - I and majority 25 (83.33%) were non-smoker in experimental group - II

- Majority 19 (63.33%) of experimental group - I and 22 (73.33%) of experimental group - II have no history of alcoholism.

- Only 3 (10%) of both the groups were tobacco chewers.

- Majority 24 (80%) in experimental group - I and 22 (73.33%) in experimental group - II were non-vegetarian.

- Majority 29 (96.67%) of experimental group - I and 24 (80%) of experimental group - II were using foot wear.

- Majority 21 (70.00%) of experimental group - I and 20 (66.67%) of experimental group - II were using oral hypoglycemic agent.

- With regard to treatment of Diabetes mellitus, majority 28 (93.33%) of experimental group - I and 26 (86.67%) of experimental group - II were taking regular treatment.

- Major cause for Diabetic foot ulcer was trauma 29 (96.67%) and 24 (80%) in experimental groups - I and II respectively.

- Majority 17 (56.67%) of experimental group - I had 4 - 6 years duration of Diabetes mellitus and 20 (66.67%) of experimental group - II had Diabetes mellitus for 2 - 4 years duration.

FIGURE 2.1 Percentage distribution of age of patients with Diabetic foot ulcer.

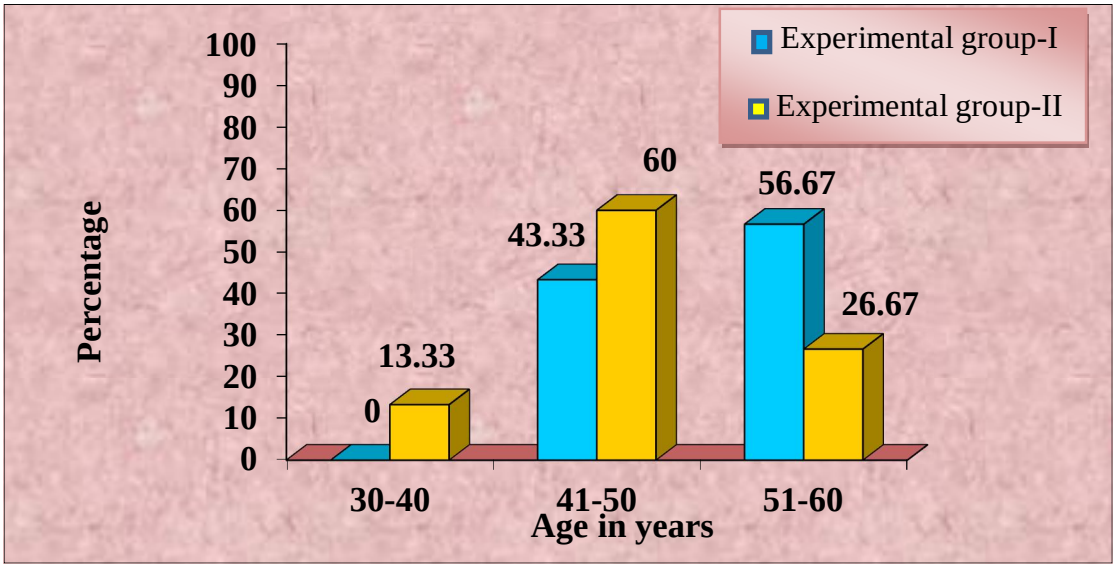


FIGURE 2.2 Percentage distribution of the gender of patients with Diabetic foot ulcer

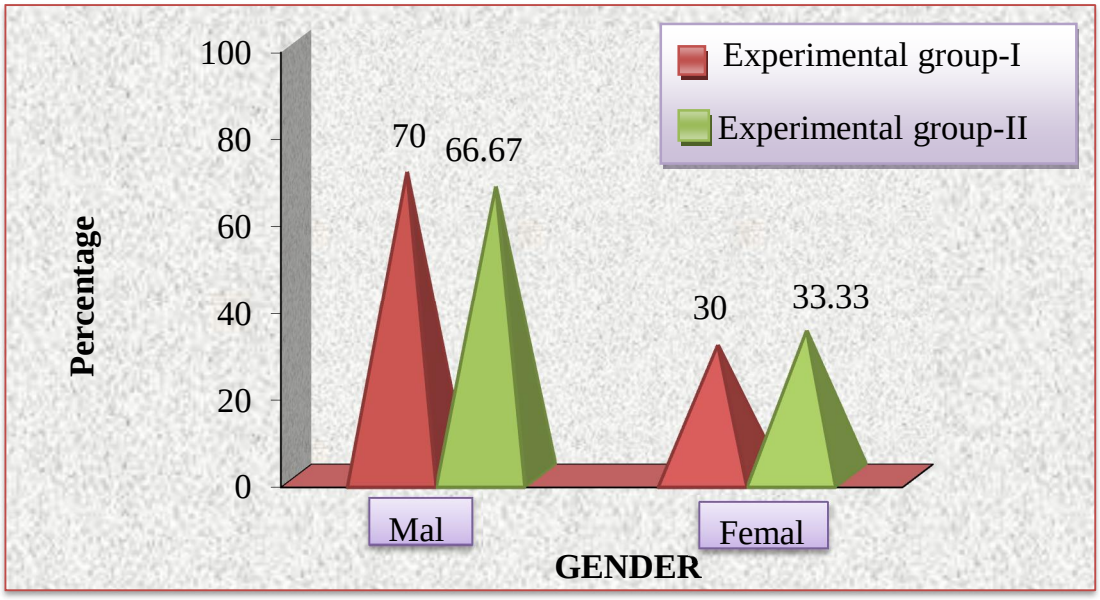


FIGURE 2.3 Percentage distribution of history of smoking of patients with Diabetic foot ulcer

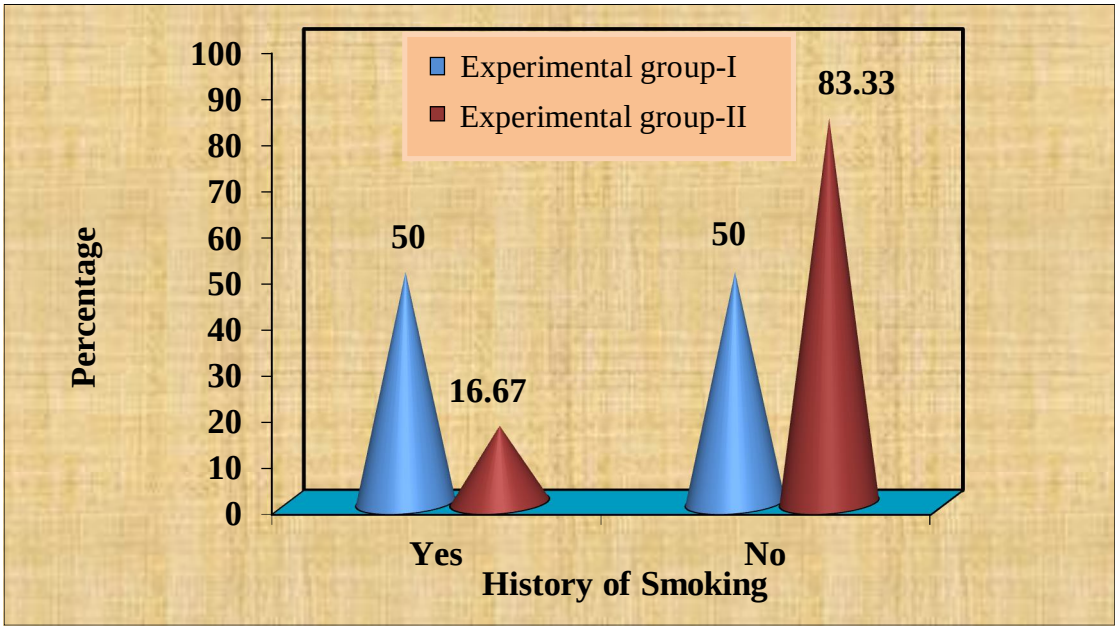


FIGURE 2.4 Percentage distribution of type of treatment of patients with Diabetic foot ulcer

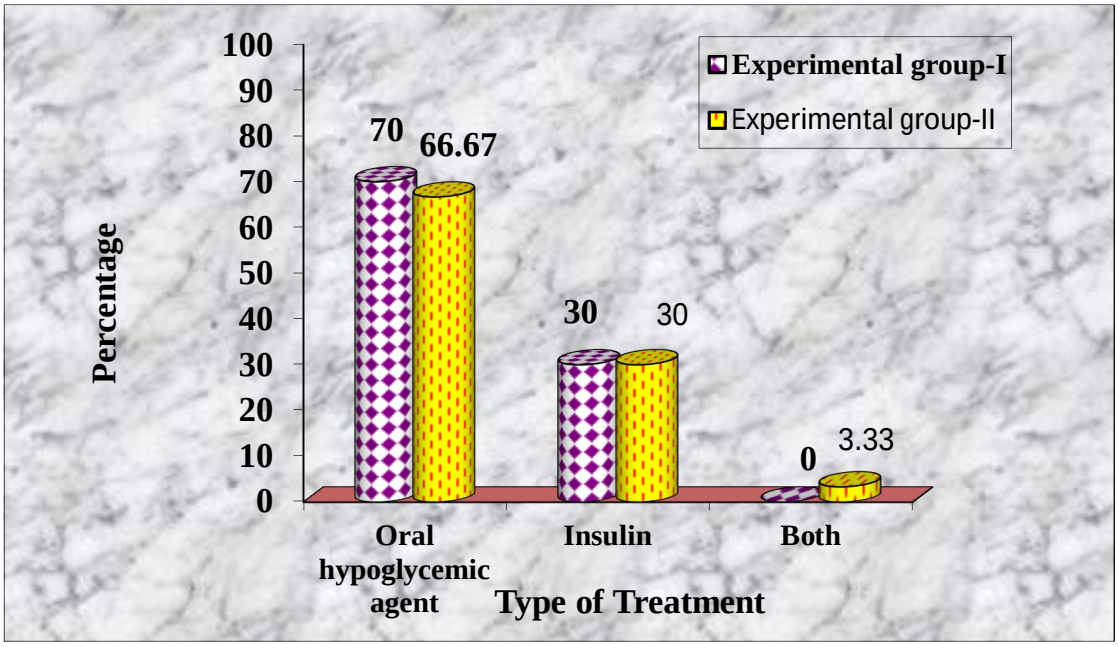


FIGURE 2.5 Percentage distribution of cause of foot ulcer of patients with Diabetic foot ulcer

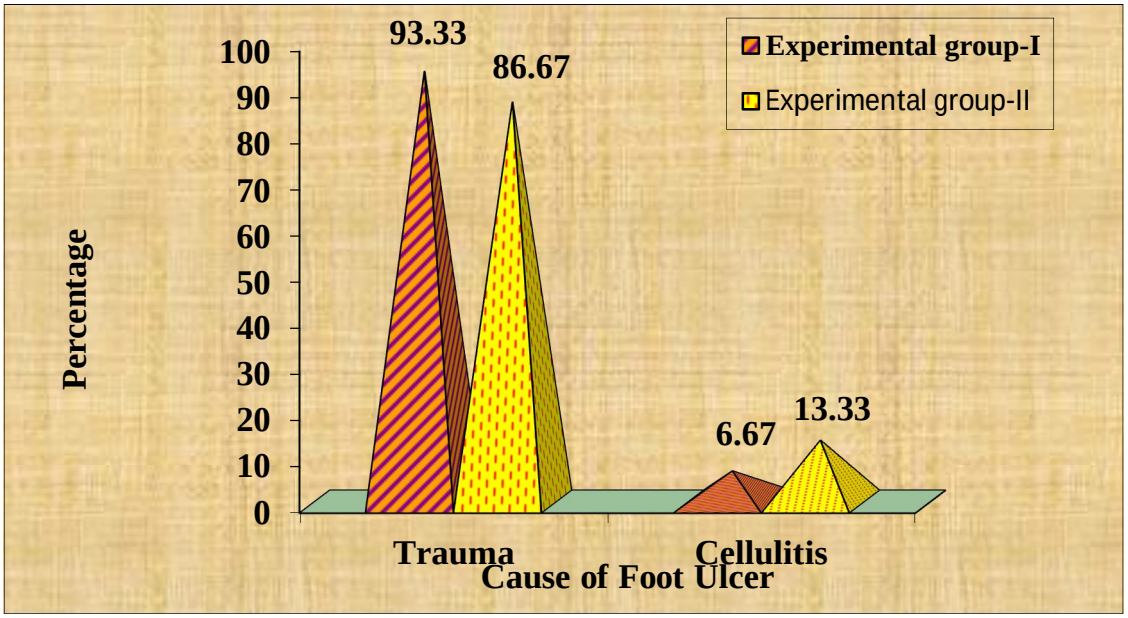
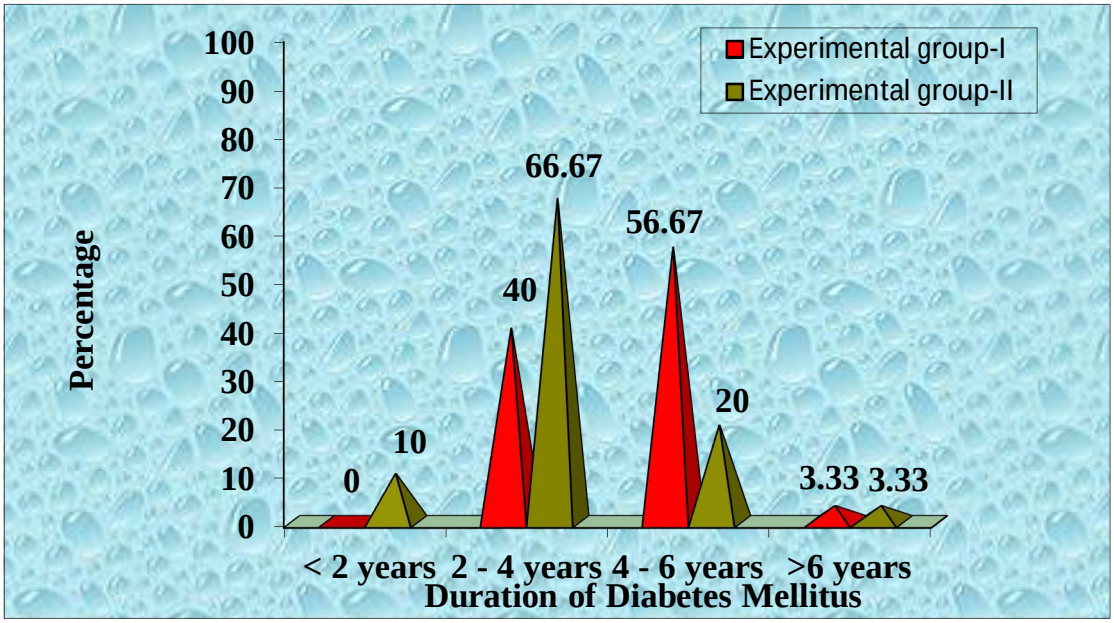


FIGURE 2.6 Percentage distribution of duration of diabetes mellitus of patients with Diabetic foot ulcer



SECTION - II

TABLE 2

Pre-test and post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - I (N=30)

SEVERITY OF THE WOUND	EXPERIMENTAL GROUP – I			
	PRE-TEST		POST-TEST	
	F	%	F	%
MINIMAL	2	6.67	20	66.67
MILD	26	86.67	10	33.33
MODERATE	2	6.67	0	O
CRITICAL	0	0	0	0

Table 2 depicts the pre-test majority 26 (86.67%) had mild wound severity, 2 (6.67 %) had minimal wound severity and 2 (6.67%) had moderate wound severity.

In post-test majority 20 (66.67%) had minimal wound severity and 10 (33.33%) had mild wound severity.

FIGURE 3 Percentage distribution of pre-test and post-test level of wound severity among patients with Diabetic foot ulcer receiving super- oxidized solution dressing in experimental group - I

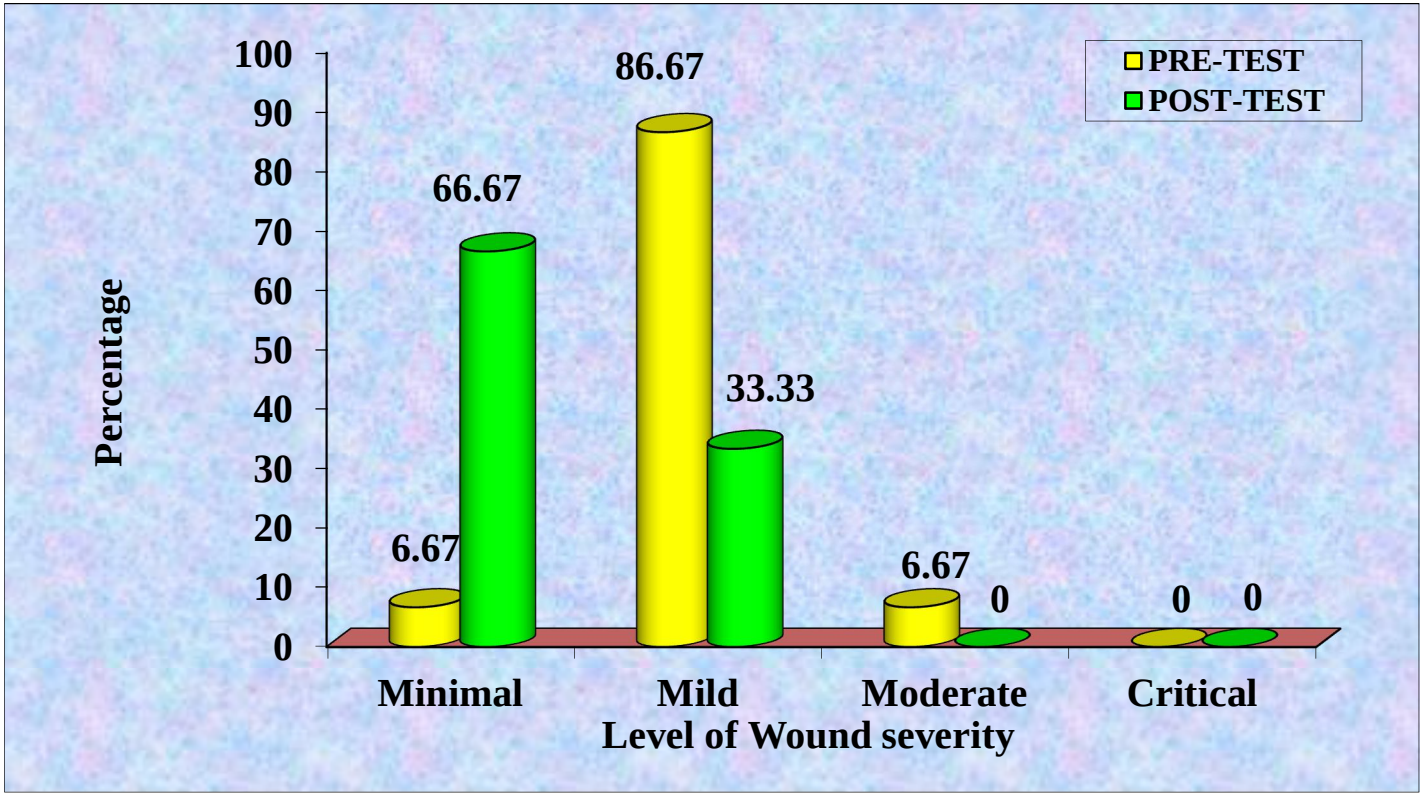


TABLE 3

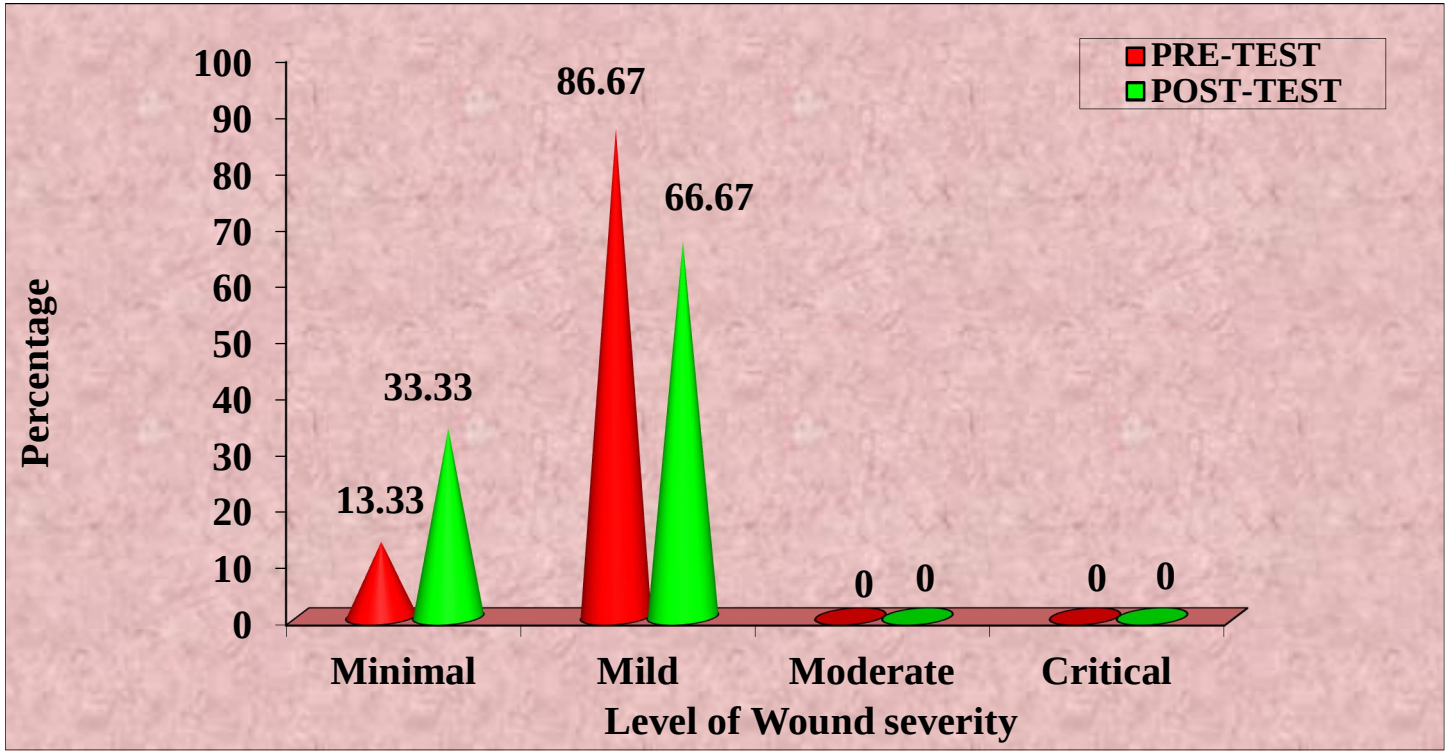
Pre-test and post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - II. (N=30)

SEVERITY OF THE WOUND	EXPERIMENTAL GROUP - II			
	PRE-TEST		POST-TEST	
	F	%	F	%
MINIMAL	4	13.33	10	33.33
MILD	26	86.67	20	66.67
MODERATE	0	0	0	0
CRITICAL	0	O	0	0

Table 3 represents the pre-test majority 26 (86.67%) had mild wound severity and 4 (13.33 %) had minimal wound severity.

In post-test majority 20 (66.67%) had mild wound severity and 10 (33.33%) had minimal wound severity.

FIGURE 4 Percentage distribution of pre-test and post-test level of wound severity among patients with Diabetic foot ulcer receiving povidone - iodine dressing in experimental group - II



SECTION - III

TABLE 4

Comparison of mean score and standard deviation of wound severity in the pre-test and post-test among patients with Diabetic foot ulcer in experimental group - I.

Test	Total score	Mean	S.D	Mean Difference	't' Value
PRE –TEST	65	26.57	4.19	8.43	24.466*** S
POST-TEST	65	18.13	4.09		

***p<0.001, S – Significant

Table 4 illustrate the calculated pre-test wound severity mean score was 26.57 with the standard deviation of 4.19 and the post-test wound severity mean score was 18.13 with the standard deviation of 4.09.

The mean difference was 8.43 and the Calculated 't' value was 24.466 which showed that there was a significant difference between the pre-test and post-test mean score of wound severity among patients with Diabetic foot ulcer in experimental group - I at p<0.001 level.

TABLE 5

Comparison of mean score and standard deviation of wound severity in the pre-test and post-test among patients with Diabetic foot ulcer in experimental group - II

Test	Total score	Mean	S.D	Mean Difference	't' Value
Pre-test	65	24.60	3.55	2.90	14.958*** S
Post-test	65	21.70	3.18		

***p<0.001, S – Significant

Table 5 shows the obtained pre-test wound severity mean score was 24.60 with the standard deviation of 3.55 and the post-test wound severity mean score was 21.70 with the standard deviation of 3.18.

The mean difference was 2.90 and the calculated 't' value was 14.958 which showed that there was significant difference between the pre-test and post-test mean score of wound severity among patients with Diabetic foot ulcer in experimental group - II at p<0.001 level.

TABLE 6

Comparison of mean score and standard deviation of wound severity in the post-test among patients with Diabetic foot ulcer in experimental group – I and II

Groups	Total score	Mean	S.D	Mean difference	't' Value
Experimental group – I	65	18.13	4.09	3.57	3.763*** S
Experimental group – II	65	21.70	3.18		

***p<0.001, S – Significant

Table 6 delineates the experimental group – I wound severity mean score was 18.13 with the standard deviation of 4.09. In experimental group - II wound severity mean score was 21.70 with standard deviation of 3.18.

The mean difference was 3.57 and calculated 't' value was 3.763 indicating that there was a significant difference between post-test level of wound severity in experimental group - I and experimental group - II at p<0.001 level.

SECTION - IV

TABLE 7

Association of post-test level of wound severity among patients with Diabetic foot ulcer in experimental group - I with their selected demographic variables

(N=30)

S.NO	Demographic Variables	Minimal (13 – 20)	Mild (21 – 30)	Chi-Square Value
		F	F	
1	**Age in years**			1.086 N.S
	30 - 40	-	-	
	41 - 50	10	3	
	51 - 60	10	7	
2	**Gender**			0.714 N.S
	Male	15	6	
	Female	5	4	
3	**History of smoking**			0.600 N.S
	Yes	9	6	
	No	11	4	
4	**History of alcoholism**			0.072 N.S
	Yes	7	4	
	No	13	6	
5	**History of tobacco chewing**			1.667 N.S
	Yes	1	2	
	No	19	8	
6	**Diet pattern**			0.938 N.S
	Vegetarian	3	3	
	Non vegetarian	17	7	
7	**Use of foot wear**			2.069 N.S
	Yes	20	9	
	No	0	1	

S.NO	Demographic Variables	Minimal (13 – 20)	Mild (21 – 30)	Chi-Square Value
		F	F	
8	**Type of treatment**			0.714 N.S
	Oral hypoglycemic agent	13	8	
	Insulin	7	2	
	Both	0	0	
9	**Treatment of Diabetes mellitus**			0.268 N.S
	Regular	19	9	
	Irregular	1	1	
10	**Cause of foot ulcer**			0.517 N.S
	Cellulitis	1	0	
	Trauma	19	10	
11	**Duration of diabetes mellitus**			3.110 N.S
	<2 years	-	-	
	2 - 4 years	7	5	
	4 - 6 years	13	4	
	>6 years	0	1	

N.S – Not Significant

The calculated chi-square value is less than the tabulated value (at P< 0.001level) for age, gender, history of smoking, alcoholism and tobacco chewing, diet pattern, use of foot wear, type of treatment, treatment of diabetes mellitus, cause of foot ulcer and duration of Diabetes mellitus among patients with Diabetic foot ulcer. So there is no significant association found between post-test level of wound severity and demographic variables such as age, gender, history of smoking, alcoholism and tobacco chewing. Diet pattern, use of foot wear, type of treatment, follow-up treatment, cause of foot ulcer and duration of diabetes mellitus in experimental group - I.

TABLE 8

Association of the post-test level of wound severity among patients with Diabetic foot ulcer in the experimental group - II with their selected demographic variables

(N=30)

S.NO	Demographic Variables	Minimal (13 – 20)	Mild (21 – 30)	Chi-Square Value
		F	F	
1	**Age in years**			4.688 N.S
	30 – 40	3	1	
	41 – 50	6	12	
	51 – 60	1	7	
2	**Gender**			1.875 N.S
	Male	5	15	
	Female	5	5	
3	**History of smoking**			3.000 N.S
	Yes	0	5	
	No	10	15	
4	**History of alcoholism**			2.131 N.S
	Yes	1	7	
	No	9	13	
5	**History of tobacco chewing**			0.000 N.S
	Yes	1	2	
	No	9	18	
6	**Diet pattern**			0.341 N.S
	Vegetarian	2	6	
	Non vegetarian	8	14	
7	**Use of foot wear**			0.938 N.S
	Yes	9	15	
	No	1	5	

S.NO	Demographic Variables	Minimal (13 – 20)	Mild (21 – 30)	Chi-Square Value
		F	F	
8	**Type of treatment**			3.125 N.S
	Oral hypoglycemic agent	5	15	
	Insulin	4	5	
	Both	1	0	
9	**Treatment of Diabetes mellitus**			0.144 N.S
	Regular	9	17	
	Irregular	1	3	
10	**Cause of foot ulcer**			0.000 N.S
	Cellulitis	2	4	
	Trauma	8	16	
11	**Duration of diabetes mellitus**			2.100 N.S
	<2 years	2	1	
	2 - 4 years	6	14	
	4 - 6 years	2	4	
	>6 years	0	1	

N.S – Not Significant

The calculated chi-square value is less than the tabulated value (at P< 0.001level) for age, gender, history of smoking, alcoholism and tobacco chewing, diet pattern, use of foot wear, type of treatment, treatment of diabetes mellitus, cause foot ulcer and duration of diabetes mellitus among patients with Diabetic foot ulcer. So there is no significant association found between post-test level of wound severity and demographic variables such as age, gender, history of smoking, alcoholism and tobacco chewing. Diet pattern, use of foot wear, type of treatment, follow-up treatment, cause of foot ulcer and duration of diabetes mellitus in experimental group - II.

CHAPTER V

DISCUSSION

This chapter highlights the discussion of the data analyzed based on the objectives of the study. The problem stated is, **"A study to compare the effectiveness of super- oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals at Jeyankondam".**

The first objective of the study was to assess the level of wound severity among patients with Diabetic foot ulcer receiving super-oxidized solution dressing.

The pre-test level of wound severity revealed that in experimental group - I 2 (6.67%) had minimal wound severity, 26 (86.67%) had mild wound severity and 2 (6.67%) had moderate wound severity. The post-test level of wound severity showed that 20 (66.67%) had minimal wound severity and 10 (33.33%) had mild wound severity.

The second objective of the study was to assess level of wound severity among patients with Diabetic foot ulcer receiving povidone-iodine dressing.

The pre-test level of wound severity revealed that 4 (13.33%) had minimal wound severity and 26 (86.67%) had mild wound severity in experimental group - I. The post-test level of wound severity found 10 (33.33%) had minimal wound severity and 20 (66.67%) had mild wound severity.

The third objective of the study was to assess the effectiveness of super – oxidized solution dressing in reduction of wound severity among patients with Diabetic foot ulcer.

The calculated pre-test wound severity mean score was 26.57 with standard deviation of 4.19 and the post-test wound severity mean score was 18.13 with standard deviation of 4.09 and mean difference was 8.43. Calculated 't' value was 24.466 which showed that there was a significant difference between the pre-test and post-test mean score of wound severity among patients with Diabetic foot ulcer in experimental group-I at $p<0.001$ level of Significance.

Based on the findings the stated hypothesis H_1: There will be a significant reduction on wound severity among patients with Diabetic foot ulcer receiving super – oxidized solution dressing was accepted.

The fourth objective of the study was to assess the effectiveness of povidone – iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer.

The obtained pre-test wound severity mean score was 24.60 with the standard deviation of 3.55 and the post-test wound severity mean score was 21.70 with the standard deviation of 3.18. The mean difference was 2.90 and the calculated 't' value was 14.958 which showed that there was significant difference between the pre-test and post-test mean score of wound severity among patients with Diabetic foot ulcer in experimental group - II at $p<0.001$ level of significance.

Based on the findings the stated hypothesis H_2: There will be a significant reduction on wound severity among patients with Diabetic foot ulcer receiving povidone – iodine dressing was accepted.

The fifth objective of the study was to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer.

In experimental group - I the post-test wound severity mean score was 18.13 with the standard deviation of 4.09. In experimental group - II wound severity mean score was 21.70 with standard deviation of 3.18. The calculated 't' value was 3.763 indicating that there was a significant difference between post-test level of wound severity in experimental group - I and experimental group - II at $p<0.001$ level.

Based on the findings the stated hypothesis H_3: Super – oxidized solution dressing will be effective than the povidone - iodine dressing on reduction of wound severity among patients with Diabetic foot ulcer was accepted.

The sixth objective of the study was to associate post-test level of wound severity among patients with Diabetic foot ulcer receiving super - oxidized solution dressing with their selected demographic variables.

Findings revealed that there was no significant association between the post-test level of wound severity and the selected demographic variables of age, gender, history of smoking, alcoholism, and tobacco chewing, diet pattern, use of foot wear, type of treatment, follow–up treatment, cause of foot ulcer and duration of Diabetes mellitus.

Based on the findings the stated hypothesis H_4: There will be a significant association between post-test level of wound severity and selected demographic variables of patients with Diabetic foot ulcer receiving super - oxidized solution dressing was not accepted.

The seventh objective of the study was to associate post-test level of wound severity among patients with Diabetic foot ulcer receiving povidone - iodine dressing with their selected demographic variables.

Findings revealed that there was no significant association between the post-test level of wound severity and the selected demographic variables of age, gender, history of smoking, alcoholism, and tobacco chewing, diet pattern, use of foot wear, type of treatment, follow–up treatment, cause of foot ulcer and duration of Diabetes mellitus.

Based on the findings the stated hypothesis H_5: There will be a significant association between post-test level of wound severity and selected demographic variables of patients with Diabetic foot ulcer receiving povidone - iodine dressing not accepted.

CHAPTER VI

SUMMARY, MAJOR FINDINGS, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter is divided in to two sections in the first section summary of the study, findings and conclusion is presented. In the second section implication in various areas of nursing practice, nursing education, nursing administration, nursing research and recommendations for further study are present.

SUMMARY OF THE STUDY

The objectives of the study were to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer between experimental group - I and experimental group - II and to find out the association between post-test level of wound severity in an experimental group - I and II with their selected demographic variables.

True experimental pre-test - post-test design was adopted for the study. Independent variable in this study was super - oxidized solution dressing and povidone - iodine dressing and dependent variable was wound severity of Diabetic foot ulcer. The conceptual framework adopted for the present study was modified wiedenbach's helping art of clinical nursing theory. The tool used in this study was Bates - Jensen wound assessment scale to assess the wound severity. The pilot study and main study were conducted in selected hospitals at Jeyankondam. Super - oxidized solution dressing and povidone - iodine dressing was given as interventions and pre-test and post-test were done on day-1 and day-7 respectively to both groups. The findings revealed that the experimental group - I mean score 18.13 was lesser than the

experimental group - II mean score 21.70. The obtained‘t’ value was 3.763, significant at P<0.001 level. Hence it was found that super – oxidized solution dressing was more effective than povidone – iodine dressing in reduction of wound severity among patients with Diabetic foot ulcer. There was no significant association found between age, gender, history of smoking, alcoholism, and tobacco chewing, diet pattern, use of foot wear, type of treatment, treatment of diabetes mellitus, cause of foot ulcer and duration of diabetes mellitus and post-test level of wound severity of the participants in both the groups.

Major findings of the study

- Majority of samples in experimental group - I (56.67%) belong to the age group 51 - 60 years and in experimental group - II (60%) belong to the age group of 41 - 50 years.
- 70% in experimental group - I and 66.67% in experimental group - II were male.
- 10% of both experimental group - I and experimental group - II were tobacco chewer.
- 50% of experimental group - I and 83.33% in experimental group - II were smokers.
- 63.33% of experimental group - I and 73.33% in experimental group - II were having no history of alcoholism.
- 80% of experimental group - I and 73.33% in experimental group - II were non-vegetarian.
- 96.67% of experimental group - I and 80% in experimental group - II were using foot wear.

- 70% of experimental group - I and 66.67% in experimental group - II were treated with oral hypoglycemic agent.
- 93.33% of experimental group - I and 86.67% in experimental group - II were on regular treatment.
- 96.67% in experimental group - I and 80% in experimental group - II reported the cause of diabetic foot ulcer as trauma.
- 56.67% of experimental group - I had 4 - 6 years duration and 66.67% in experimental group - II had 2 - 4 years duration of diabetes mellitus.

Findings related to study intervention

- In pre-test experimental group - I, 6.67% had minimal wound severity, 86.67% had mild wound severity and 6.67% had moderate wound severity. In experimental group - II 13.33% had minimal wound severity and 86.67% had mild wound severity.
- In post-test experimental group - I, 66.67% had minimal wound severity and 33.33% had mild wound severity. In experimental group - II 33.33% had minimal wound severity and 66.67% had mild wound severity.
- In experimental group - I the pre-test wound severity mean score was 26.57 and in post-test 18.13 the calculated ‘t’ value 24.466 was significant at $p<0.001$ level.
- In experimental group - II the pre-test wound severity mean score was 24.60 and in post-test 21.70 the calculated ‘t’ value 14.958 was significant at $p<0.001$ level.

- ❖ In post-test wound severity mean score 18.13 in experimental group - I was less than and mean score 21.70 of experimental group - II. The calculated‘t’ value 3.763 was significant at $p<0.001$ level.

- ❖ There was no significant association found between post-test level of wound severity and the selected demographic variables of patients with Diabetic foot ulcer in both the groups.

IMPLICATIONS

The following implications, of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research is derived from the study.

IMPLICATIONS FOR NURSING PRACTICE

The nurse has a vital role in providing safe and effective nursing care to enhance the reduction of wound severity among patients with Diabetic foot ulcer. The findings of the present study support that, super - oxidized solution dressing is very effective.

This can be facilitated by motivating the nurse to,

1. The findings of the study enlighten the fact that super – oxidized solution dressing promotes effective wound healing than povidone - iodine dressing.
2. Learn about accurate assessment of wound severity with the use of Bates Jensen wound assessment scale.
3. Develop the skill in providing efficient nursing care for early wound healing management and promote comfort.

IMPLICATIONS FOR NURSING EDUCATION

1. The effectiveness of super - oxidized solution dressing on reduction of wound severity is to be published in the nursing journal to make awareness among the nursing students.

2. This study results can be used as an example by the nurse educator in the classroom, when giving instruction regarding the care of patients with Diabetic foot ulcer.

3. Provide adequate clinical exposure and supervise the students to give effective evidence based nursing care for Diabetic foot ulcer.

IMPLICATIONS FOR NURSING ADMINISTRATION

1. Collaborate with governing bodies to formulate standard policies and protocols to emphasize nursing care during Diabetic foot ulcer.

2. Conduct in-service education programme and continuing nursing education programme for effective wound management for Diabetic foot ulcer.

3. Update their knowledge about current practices and treatment through workshops, conference, seminars regarding diabetic foot ulcer.

4. Generate unit based evidence based guidelines with super - oxidized solution dressing and implement the practice.

IMPLICATIONS FOR NURSING RESEARCH

1. As a nurse researcher, promote more research on to compare the dressing effectiveness of using super - oxidized solution versus povidone - iodine on wound severity among patients with Diabetic foot ulcer.

2. The nurse researcher can do the research in various settings in the large samples.

3. Promote effective utilization of research findings on wound management with Diabetic foot ulcer.

RECOMMENDATIONS

The study recommends the following future research,

- A similar study can be conducted with larger samples for better generalization.

- A study can be conducted the effectiveness of other nursing measures such as honey application, hydrogen peroxide dressing, insulin application and super -oxidized solution dressing for reduction of wound severity among patients with Diabetic foot ulcer.

CONCLUSION

The study compared the effectiveness of super - oxidized solution dressing and povidone - iodine dressing on reducing wound severity among patients with Diabetic foot ulcer in selected hospitals. From the above findings, it was evidenced that super -oxidized solution dressing was more effective than povidone - iodine dressing in wound severity among patients with Diabetic foot ulcer. An improvement in the wound status and thereby in the quality of life of clients could be brought by performing super -oxidized solution dressing.

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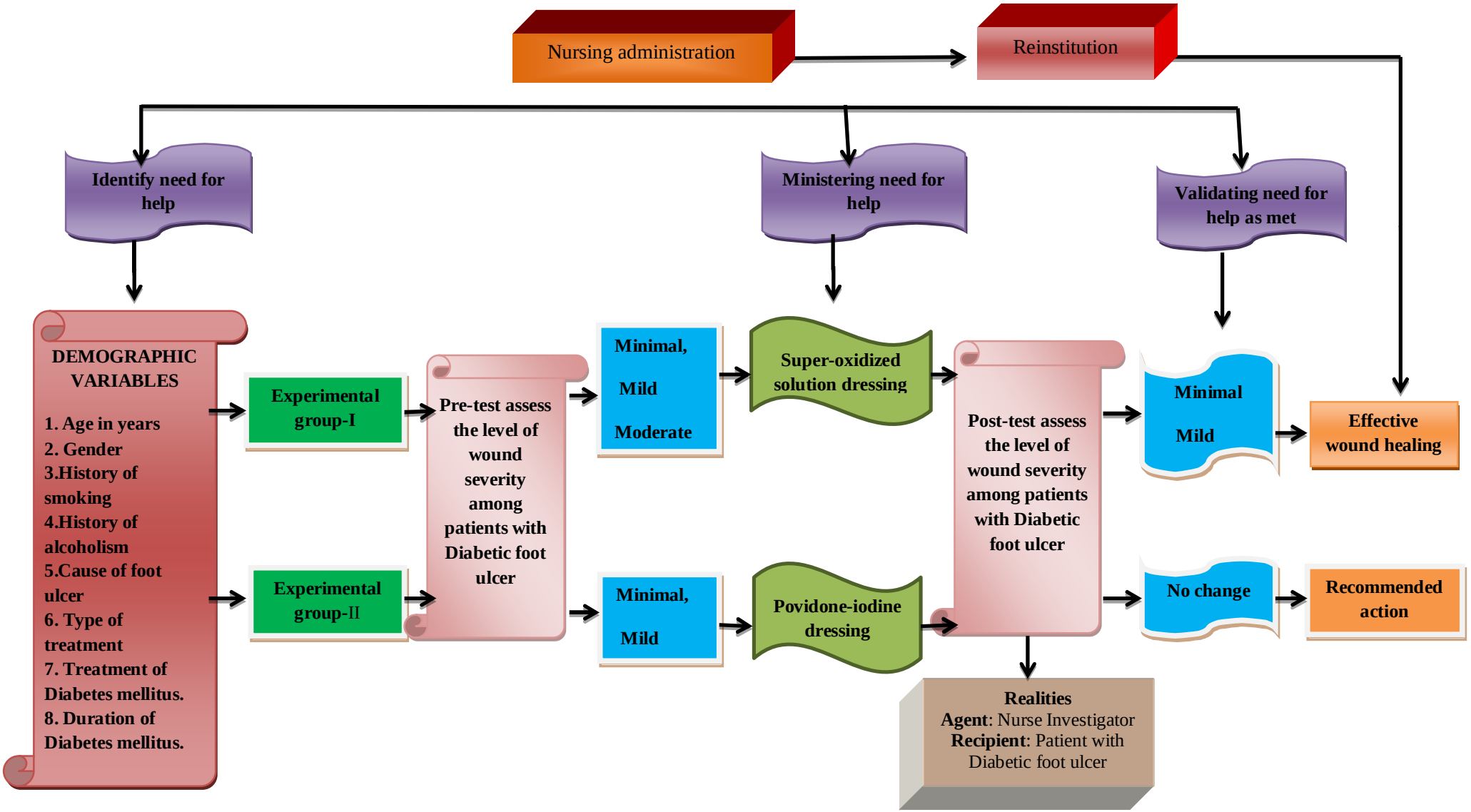
Figure 1 Wiedenbach's Helping Art to Clinical Art of Clinical Nursing Theory (1964)



ANNEXURE I

LETTER SEEKING EXPERT'S OPINION FOR

CONTENT VALIDITY

From:

301211707
II year M.Sc. (N),
Thanthai Roever College of Nursing,
Perambalur.

To:

Respected Sir / Madam,

Sub: Requisition for content validity of tool.

I am doing M.Sc. (Nursing) II year in Thanthai Roever College of Nursing, Perambalur, under The Tamil Nadu DR. M. G. R. Medical university, Chennai. As a partial Fulfillment of my M.Sc. (N) Degree Programme , I am conducting a research on "**A study to compare the effectiveness of super - oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals at Jeyankondam"**. I am sending the above stated for your expert and valuable opinion. I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you

Place: Yours sincerely,

Date: 301211707

ANNEXURE II

LIST OF EXPERTS OPINION FOR CONTENT VALIDITY OF RESEARCH TOOL

1. Dr. A. Wilson, MBBS, PG. Dip(DIAB),
   Reg. No.33494,
   Diabetic Care Center,
   Jeyankondam - 621802.

2. Prof. R. Punithavathi M.Sc. (N),
   Principal,
   Thanthai Roever College of Nursing,
   Perambalur.

3. Prof. V. J. Elizabeth M.Sc. (N),
   Vice- Principal,
   Thanthai Roever College of Nursing,
   Perambalur.

4. Dr. S. Rajina Rani M.Sc. (N). Ph.D.,
   Principal,
   Doctor's College of Nursing,
   pudukkottai.

5. Prof. P. Jasmine parimala M.Sc. (N),
   Principal,
   C.S.I ELIZA Caldwell College of Nursing,
   Idaiyangudi.

6. Prof. Angel priya, M.Sc. (N),
   Principal,
   The Salvation Army,
   Catherine Booth College of Nursing,
   Nagercoil – 629 001

ANNEXURE III

EVALUATION CRITERIA CHECK LIST FOR VALIDATION

INTRODUCTION

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly place tick mark in the appropriate column and give remarks.

Interpretation of column

Column I : Meets the criteria

Column II : Partially meet the criteria

Column III : Does not meet the Criteria

S. No	Criteria	1	2	3	Remarks
1	Scoring				
	- Adequacy				
	- Clarity				
	- Simplicity				
2	Content				
	- Logical sequence				
	- Adequacy				
	- Relevance				
3	Language				
	- Appropriate				
	- Clarity				
	- Simplicity				
4	Practicability				
	- It is easy to score				
	- Does it precisely				
	- Utility				
	Any other suggestion				

Signature :

Name :

Designation :

Address :

ANNEXURE IV (1)

PERMISSION LETTER FOR RESEARCH PURPOSE

From

301211707
II Year M.Sc. (N),
Thanthai Roever College of Nursing,
Perambalur.

Through

The principal
Thanthai Roever College of Nursing,
Perambalur.

To

The Medical Director,
Government hospital,
Jeyankondam.

Respected Madam /Sir,

I am doing M.Sc. (N) II Year in Thanthai Roever College of Nursing Perambalur, under the Tamil Nadu Dr. M .G. R. Medical University Chennai. As a partial fulfillment of my M.Sc. (N) Degree programme, I am going to conduct a study "**A study to compare the effectiveness of super - oxidized solution dressing versus povidone-iodine dressing on wound severity among patients with Diabetic foot ulcers in selected hospitals at Jeyankondam".** I would like to select government Hospital for my Data collection, as I understand that I may get many patients in your hospital. Hence I kindly request you to grant me permission to conduct my study in Government Hospital.

Thanking You

Place: Yours sincerely,

Date: 301211707

ANNEXURE IV (2)

PERMISSION LETTER FOR RESEARCH PURPOSE

From

301211707
II year M.Sc. (N),
Thanthai Roever College of Nursing
Perambalur.

Through

The principal
Thanthai Roever College of Nursing,
Perambalur.

To

The Medical officer,
Diabetic Care Center,
Jeyankondam.

Respected Madam /Sir,

I am doing M.Sc. (N) II Year in Thanthai Roever College of Nursing Perambalur, under the Tamil Nadu Dr. M. G. R. Medical University Chennai. As a partial fulfillment of my M.Sc. (N) Degree programme, I am going to conduct a study **"A study to compare the effectiveness of super - oxidized solution dressing versus povidone-iodine dressing on wound severity among patients with Diabetic foot ulcers in selected hospitals at Jeyankondam"**. I would like to select your Hospital for my Data collection, as I understand that I may get many patients in your hospital. Hence I kindly request you to grant me permission to conduct my study in your Hospital.

Thanking you

Place: Yours sincerely,

Date: 301211707

ANNEXURE V

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work "**A study to compare the effectiveness of super – oxidized solution dressing versus povidone - iodine dressing on wound severity among patients with Diabetic foot ulcer in selected hospitals at Jeyankondam** done by A. SARANYA II year M.sc Nursing, in Thanthai Roever College of Nursing, Perambalur is edited for English language appropriateness by Mr. P. Thangamani MA, B.Ed., M.Phil., PG, Asst (English).

Signature

ANNEXURE VI

ஒப்புதல் படிவம்

தந்தை ரோவர் செவிலியர் கல்லூரியில் பயிலும் 301211707 அவர்களால் நடத்தப்படுகின்ற ஆராய்ச்சி நோக்கத்தினைப்பற்றி எனக்கு தெளிவாக தெரிவிக்கப்பட்டது. இதில் பங்கேற்பதற்கு எனக்கு எந்த ஆட்சேபனையும் இல்லை. மேலும் இந்த விவரங்களை வெளியிடுவதற்கும், அச்சிடுவதற்கும் முழுசம்மதம் அளிக்கிறேன்.

கையெழுத்து:

பெயர்:

தேதி :

இடம் :

ANNEXURE VII (A)

DATA COLLECTION TOOL
SECTION - A DEMOGRAPHIC DATA

Sample No:

Kindly furnish the following details by placing a tick (✓) mark in appropriate choice.

1. **Age**

   a. 30 – 40 years ☐ b.41 - 50 years ☐ c.51-60 years ☐

2. **Gender**

   a. Male ☐ b. Female ☐

3. **History ofsmoking**

   a. Yes ☐ b. No ☐

4. **History ofalcoholism.**

   a. Yes ☐ b. No ☐

5. **History oftobacco chewing**

   a. Yes ☐ b. No ☐

6. **Diet pattern**

   a. Vegetarian ☐ b. Non-vegetarian ☐

7. **Use of foot wear**

   a. Yes ☐ b. No ☐

8. **Type oftreatment**

   a. Oral hypoglycemic agent ☐ b. Insulin ☐ c. Both ☐

9. **Treatment of Diabetes mellitus**

a. Regular ☐ b. Irregular ☐

10. **Cause of foot ulcer**

a. Cellulitis ☐ b. Trauma ☐

11. **Duration of Diabetes mellitus**

a. <2 years ☐ b. 2-4 years ☐ c.4-6 years ☐ d.>6years ☐

SECTION - B

BATES JENSEN WOUND ASSESSMENT TOOL

ITEM	ASSESSMENT	SCORE	
		PRE-TEST	POST TEST
1.Size	1 = Length x width < 4 sq cm 2 = Length x width 4 – 16 sq. cm 3 = Length x width 16.1 - 36 sq. cm 4 = Length x width 36.1 - 80 sq cm 5 = Length x width > 80 sq cm		
2. **Depth**	1 = Non blanchable erythema on intact skin 2 = Partial thickness skin loss involving epidermis &/or dermis 3 = Full thickness skin loss involving damage or necrosis of subcutaneous tissue; may extend down to but not through underlying fascia; &/or mixed partial & full thickness &/or tissue layers obscured by granulation tissue 4 = Obscured by necrosis 5 = Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures		
3. **Edges**	1 = Indistinct, diffuse, none clearly visible 2 = Distinct, outline clearly visible, attached, even with wound base 3 = Well-defined, not attached to wound base 4 = Well-defined, not attached to base, rolled under, thickened 5 = Well-defined, fibrotic, scarred or hyperkeratotic		

ITEM	ASSESSMENT	SCORE	
		PRE-TEST	POST TEST
4.**Ubder mining**	1 = None present 2 = Undermining < 2 cm in any area 3 = Undermining 2 – 4 cm involving < 50% wound margins 4 = Undermining 2 – 4 cm involving > 50% wound margins 5 = Undermining > 4 cm or Tunneling in any area 5. Necrotic Tissue		
5.**Type**	1 = None visible 2 = White/gray nonviable tissue &/or nonadherent yellow slough 3 = Loosely adherent yellow slough 4 = Adherent, soft, black eschar 5 = Firmly adherent, hard, black eschar		
6. **Necrotic Tissue Amount**	1 = None visible 2 = < 25% of wound bed covered 3 = 25% to 50% of wound covered 4 = > 50% and < 75% of wound covered 5 = 75% to 100% of wound cover		
7. **Exudates Type**	1 = None 2 = Bloody 3 = Serosanguineous: thin, watery, pale red/pink 4 = Serous: thin, watery, clear 5 = Purulent: thin or thick, opaque, tan/yellow, without odur.		
8. **Exudate Amount**	1 = None, dry wound 2 = Scant, wound moist but no observable exudates 3 = Small 4 = Moderate 5 = Large		

ITEM	ASSESSMENT	SCORE	
		PRE-TEST	POST TEST
9**. Skin Color Surrounding Wound**	1 = Pink or normal for ethnic group 2 = Bright red &/or blanches to touch 3 = White or gray pallor or hypopigmented 4 = Dark red or purple &/or nonblanchable 5 = Black or hyperpigmented		
10. **Peripheral Tissue Edema**	1 = Non present 2 = Non-pitting edema extends < 4 cm around wound 3 = Non-pitting edema extends ≥ 4 cm around wound 4 = Pitting edema extends < 4 cm around wound 5 = Crepitus and/or pitting edema extends ≥ 4 cm around wound		
11**. Peripheral Tissue Induration**	1 = None present 2 = Induration, < 2 cm around wound 3 = Induration, 2 – 4 cm extending < 50% around wound 4 = Induration, 2 – 4 cm extending ≥ 50% around wound 5 = Induration > 4 cm in any area around wound		
12. **Granulation Tissue**	1 = Skin intact or partial thickness wound 2 = Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth 3 = Bright, beefy red; < 75% &> 25% of wound filled 4 = Pink, &/or dull, dusky red &/or fills ≤ 25% of wound 5 = No granulation tissue present		

ITEM	ASSESSMENT	SCORE	
		PRE-TEST	POST TEST
13.**Epithelialization**	1 = 100% wound covered, surface intact 2 = 75% to < 100% wound covered &/or epithelial tissue extends > 0.5 cm into wound bed 3 = 50% to < 75% wound covered &/or epithelial tissue extends to < 0.5 cm into wound bed 4 = 25% to < 50% wound covered 5 = < 25% wound covered		
TOTAL SCORE			

BWAT SCORE

SEVERITY	BWAT SCORE
Minimal	13-20
Mild	21-30
Moderate	31-40
Critical	41-65